

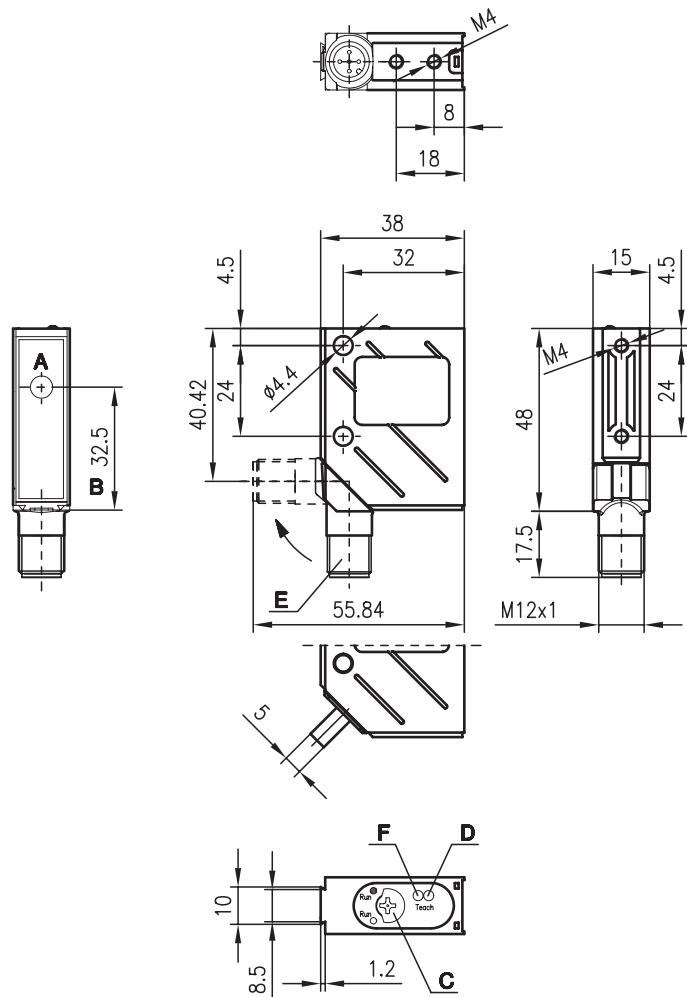


RKU 8

Retro-reflective ultrasonic sensor



Dimensioned drawing



- A Converter
- B Ultrasonic axis
- C Operational control
- D LED green
- E 90° turning connector
- F LED yellow

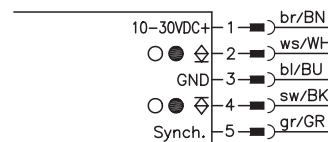


0 ... 400mm



- Colour and transmission independent detection of objects, even in wet and foggy environment
- Switching behaviour almost surface-independent
- Teach function for adjustment
- M12 turning connector

Electrical connection



Accessories:

(available separately • see page 74)

- M12 connectors (KD ...)
- Ready-made cables (K-D ...)
- Mounting systems
- Control guard

We reserve the right to make changes*8_e04e.fm



Specifications

Ultrasonic specifications

Operating range ¹⁾	0 ... 400mm
Adjustment range	160 ... 435mm
Dead zone	≤ 35mm
Ultrasonic frequency	300kHz
Typ. opening angle	see diagrams
Resolution	1mm
Reproducibility	± 1mm
Temperature drift	± 0.17%/K

Timing

Switching frequency	8Hz	30Hz
Delay before start-up	250ms	67ms

Electrical data

Operating voltage U_B	20 ... 30V DC (incl. ± 10% residual ripple)
Residual ripple	± 10% of U_B
Bias current	≤ 25mA
Switching output	1 PNP and 1 NPN transistor
Function characteristics	reversible, object detected/not detected
Output current	max. 150mA

Indicators

LED green	ready
LED green flashing	teaching in progress
LED yellow	object detected
LED yellow flashing	device or teach error

Mechanical data

Housing	metal
Weight	70g
Connection type	M12 connector, 5-pin

Environmental data

Ambient temp. (operation/storage)	-25°C ... +70°C/-40°C ... +85°C
Protective circuit ²⁾	1, 2, 3
VDE safety class	III
Protection class	IP 67
Standards applied	IEC 60947-5-2
Fitting position	any

Options

Synch. input	
Sensor synchronisation	see remarks
Sensor active/not active	U_B or not connected/0V
Activation delay	< 100ms

- 1) For the complete temperature range, measured object ≥ 20x20mm
 2) 1=short-circuit and overload protection, 2=polarity reversal protection (not for analogue inputs), 3=wire break and inductive protection

Teach process

	Operation	LED green	LED yellow
1.	Mount reflector at the desired distance (switching distance + dead zone)	ON	ON/OFF
2.	Put step switch in position "Teach"	-	-
3.	Wait for acknowledge signal	-	-
	"Teach-in was successful"	1Hz	ON
	"Teach-in was not successful"	ON	1Hz
4.	Put step switch in position "Run"	-	-
	Run ○ Output is active when object was detected	ON	ON
	Run ● Output is not active when object was detected	ON	OFF

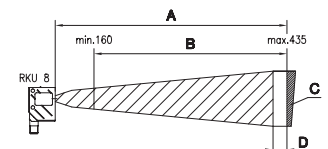
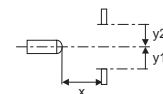
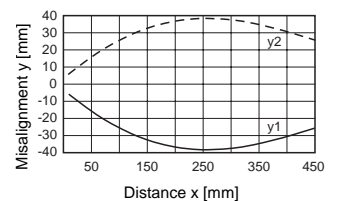
Order guide

	Designation	Part No.
With 8Hz max. switching frequency	RKU 8/24-400-S12	500 38913
With 30Hz max. switching frequency	RKU 8/24.01-400-S12	500 40956

Tables

Diagrams

Typ. response behaviour (object 20x20mm)



- A Operating range
- B Adjustment range
- C Reflector
- D Dead zone

Remarks

- **Synchronisation:**
Max. 10 sensors may be synchronised by connecting the Synch inputs. Thus, mutual interference can be avoided.
- **Temperature drift**
+0.17%/K
for temperature rise
-0.17%/K
for temperature fall



HRTU 8 Diffuse reflection ultrasonic scanner with background suppression



50 ... 400 mm



- Colour and transmission independent detection of objects, even in wet and foggy environment
- Switching behaviour almost surface-independent
- Teach function for adjustment
- M12 turning connector

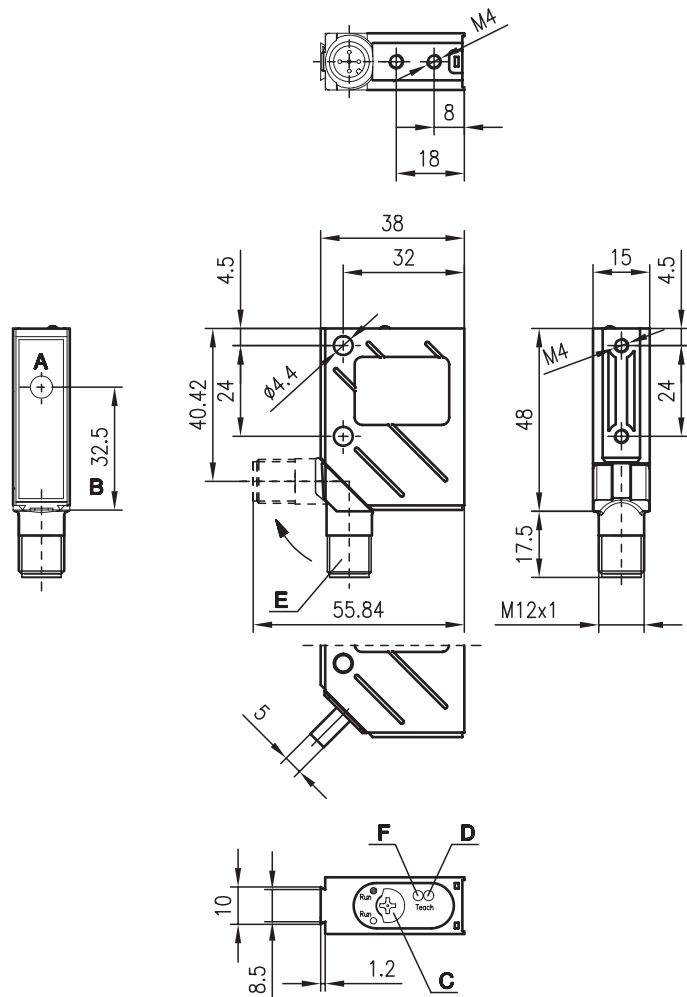


Accessories:

(available separately • see page 74)

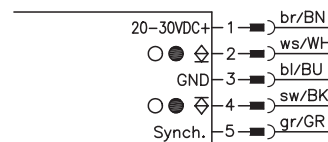
- M12 connectors (KD ...)
- Ready-made cables (K-D ...)
- Mounting systems
- Control guard

Dimensioned drawing



- A** Converter
- B** Ultrasonic axis
- C** Operational control
- D** LED green
- E** 90° turning connector
- F** LED yellow

Electrical connection



Specifications

Ultrasonic specifications

Operating range ¹⁾	50 ... 400mm
Adjustment range	60 ... 400mm
Ultrasonic frequency	300kHz
Typ. opening angle	see diagrams
Resolution	1mm
Reproducibility	± 1mm
Temperature drift	± 0.17%/K

Timing

Switching frequency	8Hz
Delay before start-up	250ms

Electrical data

Operating voltage U_B	20 ... 30V DC (incl. ± 10% residual ripple)
Residual ripple	± 10% of U_B
Bias current	≤ 25mA
Switching output	1 PNP and 1 NPN transistor
Function characteristics	reversible, object detected/not detected
Output current	max. 150mA

Indicators

LED green	ready
LED green flashing	teaching in progress
LED yellow	reversible, object detected/not detected
LED yellow flashing	device or teach error

Mechanical data

Housing	metal
Weight	70g
Connection type	M12 connector, 5-pin

Environmental data

Ambient temp. (operation/storage)	-25°C ... +70°C/-40°C ... +85°C
Protective circuit ²⁾	1, 2, 3
VDE safety class	III
Protection class	IP 67
Standards applied	IEC 60947-5-2
Fitting position	any

Options

Synch. input	
Sensor synchronisation	see remarks
Sensor active/not active	U_B or not connected/0V
Activation delay	< 100ms

- 1) For the complete temperature range, measured object ≥ 20x20mm
 2) 1=short-circuit and overload protection, 2=polarity reversal protection (not for analogue inputs), 3=wire break and inductive protection

Teach process

	Operation	LED green	LED yellow
1.	Place object at desired distance	ON	ON/OFF
2.	Put step switch in position "Teach"	-	-
3.	Wait for acknowledge signal	-	-
	"Teach-in was successful"	1Hz	ON
	"Teach-in was not successful"	ON	1Hz
4.	Put step switch in position "Run"	-	-
	Run ○ Output and yellow LED are not active when object was detected	ON	OFF
	Run ● Output and yellow LED are active when object was detected	ON	ON

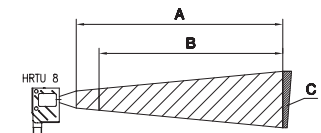
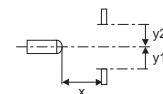
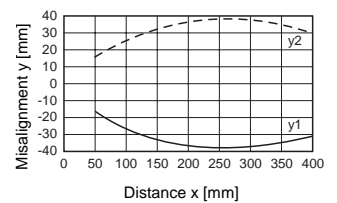
Order guide

Designation	Part No.
HRTU 8/24-400-S12	500 38912

Tables

Diagrams

Typ. response behaviour (object 20x20mm)



- A Operating range
- B Adjustment range
- C Object

Remarks

- **Synchronisation:**
Max. 10 sensors may be synchronised by connecting the Synch inputs. Thus, mutual interference can be avoided.
- **Temperature drift**
+0.17%/K
for temperature rise
-0.17%/K
for temperature fall

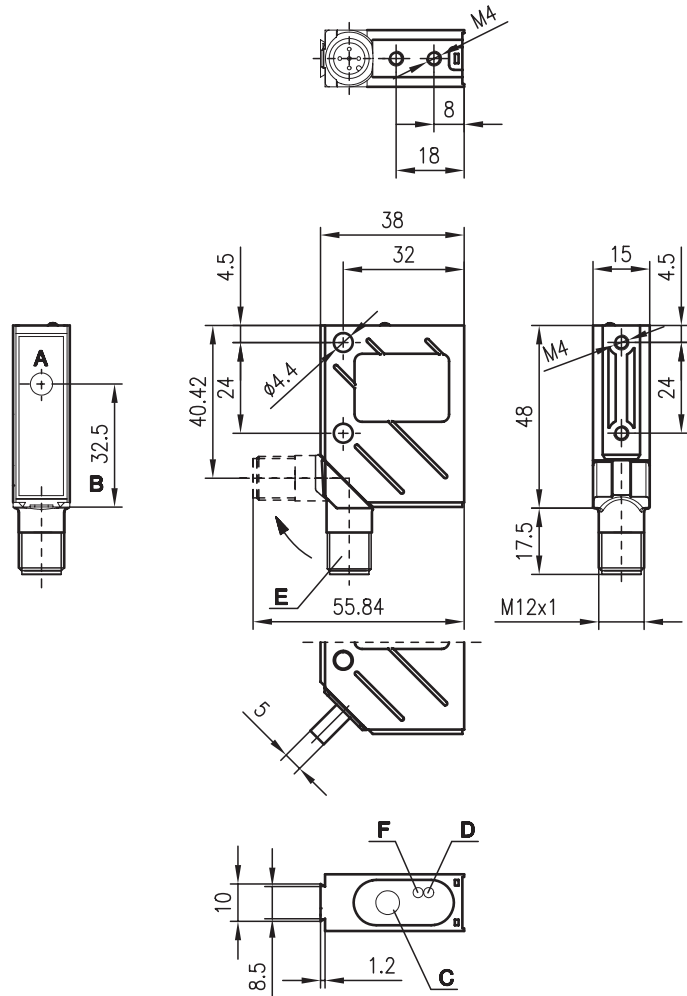


LSU 8

Throughbeam ultrasonic sensor



Dimensioned drawing



0 ... 800mm



- Colour and transmission independent detection of objects, even in wet and foggy environment
- Detection of narrow gaps
- Detection of fast moving objects
- Switching frequency 250Hz
- M12 turning connector

- A Converter
- B Ultrasonic axis
- C Step switch (receiver)
- D LED green
- E 90° turning connector
- F LED yellow

Electrical connection



Accessories:

(available separately • see page 74)

- M12 connectors (KD ...)
- Ready-made cables (K-D ...)
- Mounting systems
- Control guard

LSEU 8/24-S12

20-30VDC+	1	br/BN
●	2	ws/WH
GND	3	bl/BU
●	4	sw/BK
NC	5	gr/GR

LSSU 8-S12

20-30VDC+	1	br/BN
NC	2	ws/WH
GND	3	bl/BU
NC	4	sw/BK
NC	5	gr/GR

Specifications

Ultrasonic specifications

Operating range ¹⁾	0 ... 800mm
Adjustment range	0 ... 800mm in steps
Ultrasonic frequency	300kHz
Typ. opening angle	see diagrams
Temperature drift	± 0.17%/K, see remarks

Timing

Switching frequency	max. 250Hz
Delay before start-up	2ms

Electrical data

Operating voltage U_B	20 ... 30V DC (incl. ± 10% residual ripple)
Residual ripple	± 10% of U_B
Bias current	receiver ≤ 25mA, transmitter ≤ 35mA
Switching output	1 PNP and 1 NPN transistor
Function characteristics	object detected
Output current	max. 150mA
Switch positions	positions 1 ... 5, see Tables

Indicators

LED green	ready
LED yellow	object detected

Mechanical data

Housing	metal
Weight	70g each
Connection type	M12 connector, 5-pin (turning)

Environmental data

Ambient temp. (operation/storage)	0°C ... +70°C/-40°C ... +85°C
Protective circuit ²⁾	1, 2, 3
VDE safety class	III
Protection class	IP 67
Standards applied	IEC 60947-5-2
Fitting position	any

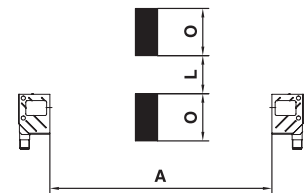
1) For the complete temperature range, measured object ≥ 20x20mm

2) 1=short-circuit and overload protection, 2=polarity reversal protection (not for analogue inputs), 3=wire break and inductive protection

Tables

Switch position ¹⁾	Switching frequency [Hz]	Typical values ¹⁾		
		A_{max} [mm]	O_{min} [mm]	L_{min} [mm]
1	250	200	10	2.5
2	200	350	15	3.0
3	150	500	25	5.0
4	100	650	30	5.0
5	50	800	60	3.5

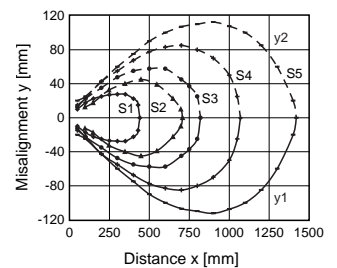
1) Different adjustments may produce better values



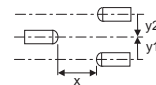
O Object
L Gap
A Distance transmitter/receiver

Diagrams

Typ. response behaviour



S1 Switch position 1
S2 Switch position 2
S3 Switch position 3
S4 Switch position 4
S5 Switch position 5



Order guide

	Designation	Part No.
With M12 connector	LSU 8/24-S12	
Transmitter	LSSU 8-S12	500 38914
Receiver	LSEU 8/24-S12	500 38915

Remarks

- Temperature drift
+0.17%/K
for temperature rise
-0.17%/K
for temperature fall